

Colorado Department of Health

Review and Comment
of letter submitted September 16, 1992
Draft EMD OP GT.30
In-Situ Characterization of Radionuclides

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General Comments

- 1) The Division notes that, within this operating procedure, there are no provisions for HPGe surveys within buildings or for HPGe surveys conducted within a laboratory setting on field samples. Both of these procedures have been proposed in RFI/RI workplans, but the workplans delegated the responsibility for presenting the details of the procedures to this EMD OP. This material must appear in one place or the other. (The Division recommends, as we have in the past, that procedures applicable to more than one OU be included in the operating procedures and unique procedures to one OU be included in the workplans.)

Response

GT.30 does not discuss the location of in-situ measurements. GT.30 restricts itself to the general operation of a measurement system. A separate SOP is being written to address the application of the Laboratory HPGe. In addition, we are preparing, per agency concurrence a document, ***Compendium of In-Situ Radiological Characterization Methods and Analysis***.

- 2) As there are limitations on HPGe applicability, operating procedures need to be developed for other types of radiation surveys that may be used on RFP. Specifically, the Division believes that an OP for FIDLER (and/or NaI) surveys should be developed.

Response

This comment suggests that a NaI crystal may be better than HPGe for the detection of radionuclides. The physics do not support that position, however the SOPs for alternative systems are needed and will be developed and submitted for agency review.

- 3) Several RFI/RI workplans have mentioned that vertical soil profiles will be sampled to assist calibration of the HPGe equipment. This calibration procedure is not included in the operating procedure.

Response

GT.30 restricts itself to the general operation of the measurement system. The vertical soil profiles should be taken to determine the vertical distribution of radionuclides. This information is used by the model for the computation of conversion factors for the HPGe measurement. An SOP for that sampling effort will be developed and submitted for agency review.

- 4) One of the principle contaminants of concern for any radiation survey at RFP is plutonium. Since the HPGe equipment only measures gamma activity, concentrations of plutonium must be inferred from the concentration of gamma-emitting americium. There is no mention in this operating procedure of how this would be done.

Response

Plutonium does have a gamma ray signature associated with it. It would facilitate the measurement if plutonium concentrations could be inferred by americium. In any event, GT.30 restricts itself to system operation.

- 5) This procedure only presents button-pushing of the equipment. Criteria for applicability and implementability need to be included.

Response

Criteria for applicability should come under a separate document— ***Compendium of In-Situ Radiological Characterization Methods and Analysis***.

- 6) This procedure is not written in a manner consistent with other operating procedures for RFP.

Response

The SOPs at RFP have been written by wide variety of people for a variety of different purposes. This SOP only deals with the operation of the machine.

- 7) If standard sampling forms are envisioned for use in the field (Completed for each sampling grid point and/or sampling event), examples of these forms need to be included in the operating procedure.

Response

We agree and have revised GT.30 to include the field worksheet.

- 8) Equipment operating manuals also need to be included in the procedure unless they are too extensive.

Response

We agreed and GT.30 has been revised to reference its equipment manuals.

Specific Comments

- 1) In Section 4.0 of the procedure, no limitations or precautions are delineated. Please clarify spacing determination, collimator use, count times, sensitivity, range, detector height, sweep, field of view, storage precautions, terrain criteria, weather criteria, etc., etc., for the Division since we are obviously uninformed.

Response

This comment addresses system applications and not operation, more information about the physics behind the operation and appropriate applications of the HPGe and other detectors

will be presented in the ***Compendium of In-Situ Radiological Characterization Methods and Analysis***.

- 2) Section 6 contains no equipment list.

Response

An equipment list has not been included in the SOP because it is not necessarily required in an SOP.

- 3) Instruction 6.1 states that location and sampling height will be determined by a supervisor. Hopefully, the location points of any survey grid and detector height have been predetermined in an approved workplan. If this is not the case, clarification of what is meant by "supervisor" would be very helpful.

Response

We agree and GT.30 has been revised to reflect this comment. The OU 13 Revised Workplan will include a table of detector heights and the corresponding fields of view.

- 4) Please provide details for Instruction 6.12. Information such as count time, instrument sensitivity, and adjustments that need to be made to the equipment would seem to be important here.

Response

This information will be addressed in the ***Compendium of In-Situ Radiological Characterization Methods and Analysis***.

- 5) Regarding Instruction 6.13.11, QA/QC procedures need to be developed to handle recurring "unusual items." In addition, criteria on when HPGe gives way to alternate and better suited surveys should be developed.

Response

This information will be addressed in the ***Compendium of In-Situ Radiological Characterization Methods and Analysis***.

- 6) Appendix 1 makes reference to "sampling strategies." To the extent practical, the common and repeatedly employed strategies should be made a part of this operating procedure.

Response

This information will be addressed in the ***Compendium of In-Situ Radiological Characterization Methods and Analysis***.